Description of the Types of Surveys

The TFW-MP survey methods consist of a modular system of standard methodologies. The modular system provides the flexibility needed by TFW cooperators to develop custom monitoring plans by selecting appropriate monitoring parameters and standardized methods to meet their specific monitoring objectives. This system was developed to accommodate differences in stream channel/watershed conditions and forest management issues throughout the state of Washington.

A brief description of the monitoring surveys in the TFW-MP manual follows.

Stream Segment Identification Method. This is a standard method for breaking stream networks into discrete segments based on tributary confluences, stream gradient, and channel confinement for use in the WSA Stream Channel Assessment module and for planning and organizing TFW-MP stream surveys.

Reference Point Survey. This survey provides standard methods for field marking segment boundaries and establishing a network of monitoring locations at 100 meter increments along stream reaches. The reference points provide a systematic sampling layout where bankfull width, bankfull depth and canopy closure are measured, photographs are taken, and observations of human channel modification factors are collected. Use of reference points also allows sorting of habitat unit and LWD data by 100 meter reaches, providing a convenient means of examining variability within stream reaches and a framework for sub-sampling during iterative monitoring surveys. Information is produced on mean bankfull width, mean bankfull depth, width:depth ratio and mean canopy closure that is useful in the WSA Stream Channel and Fish Habitat assessment modules.

Habitat Unit Survey. This survey provides methods for identifying habitat units, measuring their surface area, and collecting information on residual pool depth and pool-forming factors. It produces information on pool frequency and the percentage of pool surface area that are suitable for use in the WSA Fish Habitat Assessment resource condition indices. Other information produced includes pool:riffle ratio, length of side channels, and the frequency distribution of residual pool depths and pool-forming factors.

Large Woody Debris Survey. This survey provides methods for documenting the number, volume and characteristics of large woody debris pieces in stream channels. A choice of survey methods is provided. The Level 1 survey involves a rapid tally of pieces by size category, while the more intensive Level 2 method involves measuring the diameter of each piece and the length by channel zone. Both surveys produce information on total and key LWD pieces per channel width suitable for use in the WSA Fish Habitat Assessment resource condition indices. Other information generated by the Level 2 survey includes piece diameters, total and in-channel volume, abundance by wood type (conifer/deciduous), stability factors, decay and orientation.

Stream Temperature Survey. This survey provides methods for measuring stream temperatures and collecting data on riparian shade and channel conditions that influence stream temperature. It produces information on maximum and mean stream temperature suitable for use in the WSA Riparian Assessment Module and for comparison with Washington State Water Quality standards for stream temperature.

Salmonid Spawning Gravel Composition Survey. This survey provides methods for sampling salmonid spawning habitat to determine the particle size composition of spawning gravel. Options are provided for both volumetric and gravimetric processing of samples. This survey produces information on the percentage of fine sediments and geometric mean particle size suitable for use in the WSA Fish Habitat Assessment resource condition indices.

Salmonid Spawning Habitat Availability Survey. This survey provides methods for documenting the availability of potentially suitable spawning habitat for both large and small bodied salmonids. It produces information on the abundance of spawning habitat suitable for use in the WSA Fish Habitat Assessment resource condition indices.

Salmonid Spawning Gravel Scour Survey. This survey provides methods for documenting the depth and frequency of stream bed scour in salmonid spawning habitat. It produces information on redd scour suitable for use in the WSA Fish Habitat Assessment resource condition indices.

Other Information Included in the Manual. The manual also includes information on monitoring study design, discharge measurement, equipment calibration, quality assurance surveys and data archiving

DOCUMENT INFORMATION

This manual replaces all previous versions. This method was separated from its original inclusion as a module in the comprehensive 1994 TFW Ambient Monitoring Program manual. The manual has been scanned as one document and includes appendixes. A limited supply of manuals are available by contacting the TFW Monitoring Program at the Northwest Indian Fisheries Commission (360)438-1180, or the Washington Department of Natural Resources Forest Practices Division - CMER Documents (360)902-1400.

VIEWING & DOWNLOADING

To read and download the manual files, you must have Adobe Acrobat Reader installed on your computer. If you do not have this software, click on the line above for automatic free installation before continuing. The manual has been divided into seven sections and they are presented in order of document layout. Some graphics may not appear clear when viewed on your computer screen, but they will come out fine when printed. Click on underlined sections to view. Section headings are followed by file size, number of pages, and version date.

PRINTING

Use a printer with minimum resolution of 300 dots per inch (dpi). Best graphics quality is attained when printing at 1200 dpi and greater.

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ERRATA

If you find other errors in any TFW method manual, please contact Allen Pleus at (360) 438-1181 x354 or email at apleus@nwifc.wa.gov.